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TITLE: CONTROLLED ERASING METHOD IN MEMORY DEVICE, PARTICULARLY IN ANALOG AND MULTI-LEVEL FLASH EEPROM DEVICE

PUBN-DATE: October 8, 1999

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APPL-DATE: January 22, 1999

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## ABSTRACT:

PROBLEM TO BE SOLVED: To provide a controlled erasing method in a flash EEPROM device which does not require structural change of memory.

SOLUTION: A controlled erasing method comprises at least a step (40) of supplying at least one erase pulse to cell of memory array, a step of comparing a threshold value voltage of cell erased with a certain lower threshold value, a step of performing selectively soft programming to the erased cell having the threshold value voltage lower than the lower threshold value voltage and a step (42) of verifying that the erased cell has the threshold value higher than the lower threshold value. When the erased cells of the predetermined number, which is at least one, have the threshold value higher than the first threshold value, only one erase pulse is given to all cells (44), and the selective soft programming and verify step are repeated.

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